CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT

CLASSIFICATION TITLE	**DISTRICT/DIVISION/OFFICE**	
ELECTRICAL ENGINEERING TECHNICIAN III	02/MAINTENANCE & OPERATIONS/ ITS ENGINEERING & SUPPORT	
WORKING TITLE	**POSITION NUMBER**	**EFFECTIVE**
ITS TECHNICIAN	902-369-3626-xxx	

As a valued member of the Caltrans team, you make it possible for the Department to improve the mobility across California by being innovative and flexible; working cooperatively with team members and others; and treating others fairly, honestly and with respect. Your efforts are important to each member of the team, as well as those served by Caltrans.

GENERAL STATEMENT:

Under the direction of the Senior Transportation Electrical Engineer of the Office of ITS Engineering and Support, the incumbent installs, configures, tests and troubleshoots systems and Intelligent Transportation System (ITS) equipment that are part of the district's Transportation Management System (TMS). This includes process control networks, telecommunications systems, microwave communications systems, video display systems, electrical and mechanical systems that are associated with the Transportation Management Center (TMC) and Field Element Network (FEN). The incumbent also prepares, constructs and installs ITS field equipment as part of the district's capital support program. This position also assists in the preparation and/or review of plans, specifications and cost estimates for projects installing ITS facilities. Duties include but are not limited to:

TYPICAL DUTIES:

Percentage, Essential (E) / Marginal (M)

15% (E) A. Provide electronic, network, telecommunications, electrical and mechanical systems support to the district's Traffic Management Center (TMC). Duties include the installation, configuration, programming, operation and maintenance of the following TMC component systems:

- Closed Circuit Television (CCTV) highway surveillance system;
- Vehicle Detection Station (VDS) system;
- Highway Advisory Radio (HAR) system;
- Changeable Message Sign (CMS) system;
- Roadway Weather Information System (RWIS);
- Automated Safety Warning (ASW) system;
- Video and audio switching and monitoring system;
- TMC cable television system;
- TMC room control system;
- TMC telecommunications system;
- TMC electrical power system.

20% (E) B. Provide electronic, network, telecommunications, electrical and mechanical systems support to the District's Intelligent Transportation System (ITS) Field Element Network (FEN) associated with the TMC. Duties include the installation, configuration, programming, operation and maintenance support of the following FEN component systems:

- Internet Protocol (IP) based wide area communications system;
- Microwave communications system;
- Various automated highway information systems;
- Various automated safety warning systems;
- CCTV highway surveillance field elements;
- VDS field elements;
- HAR field elements;
- CMS field elements;
- RWIS field elements;
- Field element uninterruptible power systems.

15% (E) C. Provide support for the electrical/electronic design and operation of equipment associated with the Districts ITS facilities to ensure proper and reliably functioning systems, including but not limited to the following:

- Reviews and provides comments on plans, specifications and estimates for ITS facilities prepared by other staff and Region Design;
- Installs and configures emergency/back-up power systems in the event of electrical/power failure (generator and/or UPS) for TMC and ITS field elements;
- Coordinates with district information technology staff to ensure continuous operation of the TMC's computers, telephone and network communications system;
- Engages in and provides support for diagnosing and troubleshooting ITS equipment malfunctions.

15% (E) D. Provide support to Project Development and Project Delivery / Construction for projects that include ITS facilities, including but not limited to the following:

- Prepares and receives orders for State Furnished Materials, prepares, constructs and installs state furnished ITS field equipment;
- Assists others in the preparation of plans, specifications, and estimates for various ITS field element installations. This includes performing independent field investigations, plotting preliminary site data, securing information from catalogs and/or the internet, preparing complete design/contract drawings, determining quantities and cost estimates, and developing specifications;
- Provides technical support to construction personnel including: inspection, installation, and initial activation of electrical and electronic equipment related to the district's ITS, TMC, and FEN.

10% (E) E. Provide ITS electrical support to other staff within the Traffic Office, other Functional Programs, and local agencies. Support duties would include:

- Assists others in the preparation of plans, specifications, and estimates for ITS field installations;
- Provides technical support to Construction personnel in inspection and installation of ITS, electrical and electronic equipment;
- Review work contracted to local agencies and consultants pertaining to ITS facilities.

10% (E)	F.	Assist in the development and documentation of ITS field element standards, standard designs and practices. Assist in the development of integration strategies for equipment and field systems that are connected to the TMC.
5% (E)	G.	Assist in the identification and evaluation of Intelligent Transportation System (ITS) new technologies for potential application in the district's Traffic Operations Programs.
5% (E)	H.	Assist in the preparation of Initial Report for District Approved Projects (IRDAP) for ITS, TMC, and FEN projects.
3% (M)	I.	Prepare technical reports and review work contracted to local agencies and consultants pertaining to ITS facilities.
2% (E)	J.	Attends safety meetings and complies with Departmental policies and procedures.

SUPERVISION EXERCISED OVER OTHERS:

There are no supervisory duties for this position.

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS:

Must have knowledge of the following:

- Principles and practices of electronic and computer technology and theory;
- Principles and practices of telecommunications technology and theory;
- Principles and practices of electrical technology and theory;
- Implementation of traffic monitoring and control systems, including communications and electronic theory and instrumentation for physical testing and research;
- Practical application of Intelligent Transportation System (ITS) components and other emerging technologies to address traffic management and public safety issues;
- General microwave technology and theory;
- Modern data network and communications systems;
- Effects of weather and time on electrical and electronic equipment and their operation;
- Uninterruptible Power Supply (UPS) systems;
- Standby power generation systems;
- Power distribution systems;
- Communication systems;
- Audio-visual systems;
- Electrical control schematic and wiring diagrams;
- Engineering technology mathematics;
- Computers and their use;
- Caltrans Injury and Illness Prevention Program;
- Department Policies and Procedures.

Ability to:

- Inspect the installation and operation of highway ITS components and recommend revisions;
- Read and understand highway plans, drawings, and field data which are related to highway ITS and traffic control devices;
- Install, configure, test, deploy and troubleshoot complex controller software for various automated highway systems;
- Install, test, deploy and troubleshoot complex video, data network, instrumentation and audio systems;
- Install, test, deploy and troubleshoot complex microwave transmission systems and other wireless communications systems;
- Assist in the preparation of plans, cost estimates, and specifications for ITS projects;
- Inspect and oversee ITS installations and determine if the product meets specification requirements for functionality and public safety;
- Implement effective ITS maintenance procedures to meet specified system reliability requirements;
- Interpret all drawings, plans and specifications of any kind encountered in the work and incorporate electrical, electronic and associated drawings, plans and specifications into general design and contract documents;
- Prepare as-built plans and document field element network using CADD;
- Analyze situations accurately and take effective action;
- Establish and maintain friendly and cooperative relations with those contacted in the course of the work;
- Communicate effectively orally and in writing;
- Report the status of work and the completed results;
- Prepare correspondence and detailed reports. Excellent writing skills required.

Special Personal Characteristics:

- Manages time efficiently and is well organized;
- Commitment to do what is necessary to complete the job at hand;
- Demonstrated commitment to continuous improvement in the Districts ITS infrastructure;
- Commitment to being available for after hours TMC support and other activities via use of personal communication devices such as pagers and cellular phones;
- Customer focus.

CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS:

Incumbent is responsible for decisions necessary to complete the specific job assignments listed above. Errors in judgement, analysis, actions, conduct, directions and decisions could result in inefficient use of resources, employee injuries and death, injuries and death to members of the general public, loss of individual and departmental credibility, poor employee moral and affect the ability of Caltrans to deliver its work program on schedule.

PUBLIC AND INTERNAL CONTACTS:

Contact with the public will be primarily through phone and written contact and requires a professional manner. This position also requires extensive contact within the District and North Region, including Project Development, Program Management, Advanced Planning, Construction, Permits, and Maintenance. Plan reviews will require contact with local agencies and consultants. Contact with Headquarters Traffic will be required on regular basis.

PHYSICAL, MENTAL AND EMOTIONAL REQUIREMENTS:

Incumbent will be required to use personal computers and telephones for long periods of time.

Incumbent will be required to sustain mental activity needed for report writing, problem solving, researching, analysis and reasoning, and participating in meetings.

Incumbent will be required to engage in extensive field work, lifting up to 75 pounds, occasionally driving for long periods and routine exposure to severe winter weather.

Incumbent will be required to periodically work at heights in excess of 100 feet above ground level.

Incumbent will be required to periodically engage in moderate to heavy construction type activities including: concrete work, ditching and grading, underground conduit installation, tower installation, antenna and associated apparatus installation and general equipment assembly.

Incumbent will be required to develop and maintain cooperative working relationships.

WORK ENVIRONMENT:

At their base of operations, incumbent will work in a climate-controlled office under artificial lighting. Incumbent will be required to traverse office complexes, parking lots, equipment repair shops, highways, sidewalks, roadside cut and fill slopes, and drainage facilities. Incumbent will be required to travel and work outdoors routinely and will be exposed to dirt, chemicals, noise, uneven surfaces, extreme heat, extreme wet conditions and extreme cold. Incumbent will be required to engage in field work during severe winter weather that routinely requires hiking over snow and manually removing accumulated snow from the work area.

SIGNATURES:

I have read, understand and can perform the duties listed above. If you believe you may require accommodation, please discuss this with the hiring supervisor.

EMPLOYEE	**DATE**

I have discussed with and provided a copy of this duty statement to the employee named above.

SUPERVISOR	**DATE**